

Patentability Remarks

Rejections under 35 U.S.C. §103(a) –

Claims 1, 2, 5, and 18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Smigerski *et al.* (U.S. Pat. No. 4,788,231) in view of Görl *et al.* (in KGK Journal). Claims 1 to 3, 5, and 16 to 18 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Smigerski *et al.* in view of Wolff *et al.* (U.S. Pat. No. 5,159,009). Claim 4 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Smigerski *et al.* in view of Wolff *et al.*, and further in view of Görl *et al.* (U.S. Pat. No. 5,216,055). The applicants respectfully traverse.

As amended, the claims are directed to rubber powders formed by the addition of fillers (in concentrations greater than 400 phr) to latex in one step. The advantage of this process is that the latex is uncoagulated at the time of filler addition. The one-step addition results in rubber powder particles in which filler and rubber latex are uniformly combined.

In contrast, Smigerski *et al.* add the fillers in a two-step process (see column 2, lines 14 to 24). After the first addition, the pH is adjusted to begin the coagulation of the latex, after which the remaining filler is added. This process results in rubber powder particles that have a filler core of rubber and filler (formed by the first coagulation step) surrounded by a shell of filler (deposited by the second filler addition step). In other words, the rubber particles of Smigerski *et al.* have a non-uniform cross-sectional structure. It is the presence of the filler shell that results in particles of rubber that are pourable and non-sticky.

In addition, although Smigerski *et al.* generically discloses using fillers between 20 phr and 1000 phr, not only is the preferred range between 40 phr and 250 phr (see column 3, lines 34 to 37), but also none of the examples use filler concentrations as high as 400 phr.

Neither Görl *et al.* (KGK Journal), nor Wolff *et al.*, nor Görl *et al.* (U.S. Pat. No. 5,216,055) teach or suggest a one-step filler addition process. In addition, while some of the secondary references generically disclose filler concentrations greater than 400 phr (in no case do they disclose filler concentrations greater than 1000 phr), all the preferred ranges and examples use filler concentrations less than 400 phr.

In other words, the use of filler concentrations as high as 400 phr would be unusual, and a person skilled in the art would not expect a product with such high filler concentrations to be successful. Furthermore, *if* a person skilled in the art were to use a filler concentration

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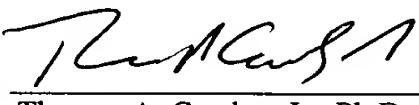
as high as 400 phr, he/she would not add this quantity to the latex in one step. Therefore none of the secondary references overcome the deficiencies of Smigerski *et al.*

The applicants respectfully submit that this application is in condition for allowance and request a timely notice to that effect. Should questions relating to patentability remain, the examiner is invited to contact the undersigned to discuss the same.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Twice Amended) A rubber powder, containing one or more oxidic or siliceous fillers, comprising at least one member selected from the group consisting of synthetic fillers in an amount of 400 [~~>250~~] phr to 5000 phr and naturally occurring fillers in an amount of 400 [~~>350~~] phr to 5000 phr; and

carbon black in an amount of 400 [~~>250~~] phr to 5000 phr, wherein the total amount of the fillers and carbon black does not exceed 5000 phr;

wherein the surface of said oxidic or siliceous fillers is modified with one or more organosilicon compounds of the formulae:

$\{R^1_n(RO)_{3-n} Si-(Alk)_m -(Ar)_p\}_q \{B^1\}$ (I),

$R^1_n (RO)_{3-n} Si-(Alkyl)$ (II),

or

$R^1_n (RO)_{3-n} Si-(Alkenyl)$ (III),

in which:

B^1 : represents -SCN, -SH, -Cl, NH₂ (when q = 1) or -S_x- (when q = 2),

R : represents an alkyl group with 1 to 4 carbon atoms, branched or unbranched, or a phenyl group, wherein all the groups R,

R^1 : represents a C₁-C₄-alkyl or C₁-C₄-alkoxy group, branched or unbranched, or a phenyl group, wherein all the groups R^1 may be identical or different,

n : is 0, 1 or 2,

Alk : represents a divalent straight or branched hydrocarbon group with 1 to 6 carbon atoms,

m : is 0 or 1,

Ar : represents an arylene group with 6 to 12 carbon atoms,

p : is 0 or 1, with the proviso that p, m and n are not simultaneously 0,

x : is a number from 2 to 8,

$Alkyl$: represents a monovalent straight or branched saturated hydrocarbon group with 1 to 20 carbon atoms,

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with 2 to 20 carbon atoms,

wherein said rubber powder is prepared by the addition of the fillers to latex in one step.

2. (Amended) The [A] rubber powder according to claim 1, wherein said powder is coated with a layer of polystyrene, polystyrene/butadiene copolymers, polyethylenes or polypropylenes.

3. (Amended) The [A] rubber powder according to claim 1, further comprising [containing] one or more processing or vulcanizing aids selected from the group consisting of zinc oxide, zinc stearate, stearic acid, polyalcohols, polyamines, plasticizer, anti-aging agents, reinforcing resins, flame retardant and sulfur.

4. (Amended) The [A] rubber powder according to claim 3, wherein the flame retardant comprises Al(OH)₃ or Mg(OH)₂.

5. (Twice Amended) The [A] rubber powder according to claim 1, wherein said powder comprises particles that range in size [which has a particle size range] from 25 µm to 3000 µm.

16. (Amended) The [A] rubber powder according to claim 1, wherein said one or more organosilicon compounds comprise a compound of formula (II), and wherein

Alkyl: represents a monovalent straight or branched saturated hydrocarbon group with 2 to 8 carbon atoms.

17. (Amended) The [A] rubber powder according to claim 1, wherein said one or more organosilicon compounds comprise a compound of formula (III), and wherein

Alkenyl: represents a monovalent straight or branched unsaturated hydrocarbon group with preferably 2 to 8 carbon atoms.

18. (Amended) A rubber powder granulate comprising the rubber powder according to claim 1, wherein said granulate comprises particles that range in size [having a particle size] from 2 mm to 10 mm.